DATA QUALITY ASSURANCE REVIEW

SITE NAME	Browns Tree Care Dump		
WORK ORDER NUMBER	20600.012.001.1182.01	TDD NUMBER	0001/18-182
PROJECT NUMBER		SDG NUMBER	1812211, 1812246 and 1812274

Weston Solutions, Inc. (WESTON®) has completed a QA review for Work Order Number 20600.012.001.1182.01, SDG Nos. 1812211 (four samples), 1812246 (four samples) and 1812274 (five samples), Browns Tree Care Dump. A total of thirteen samples were analyzed for Volatile Organic Compounds (VOCs) by Eurofins Air Toxic, Inc. Sample numbers are listed below.

BVF-SUM-011-20181210-1	BVF-SUM-012-20181210-1	BVF-SUM-013-20181210-1
BVF-SUM-014-20181210-1		
BVF-SUM-011-20181211-1	BVF-SUM-012-20181211-1	BVF-SUM-013-20181211-1
BVF-SUM-014-20181211-1		
BVF-SUM-011-20181212-01	BVF-SUM-012-20181212-01	BVF-SUM-013-20181212-1
BVF-SUM-014-20181212-1	BVF-SUM-014-20181212-3	

This data package was validated to determine if Quality Control (QC) specifications were achieved, following *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (January, 2017), *USEPA National Functional Guidelines for Inorganic Superfund Data Review* (January, 2017), *USEPA Contract Laboratory Program National Functional Guidelines for High Resolution Superfund Methods Data Review* (April, 2016), *Quality Assurance/Quality Control Guidance for Removal Activities* (September, 2011), and/or the Regional Protocol for Holding Times, Blanks, and VOA Preservation (April 13, 1989). Specific data qualifications are listed in the following discussion.

REVIEWER	Diane Quigley	DATE	December 19, 2018

Data Qualifiers

Data Qualifier Definitions were supplied by the Office of Solid Waste and Emergency Response (September 1989) and are included in the Functional Guidelines. Data qualifiers may be combined (UJ, QJ) with the corresponding combination of meanings. Additional qualifiers may be added to provide additional, more specific information (JL, UB, QJK), modifying the meaning of the primary qualifier. Additional qualifiers utilized by WESTON are H, L, K, B, and Q.

U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation or detection limit, which has been adjusted for sample weight/sample volume, extraction volume, percent solids, sample dilution or other analysis specific parameters.

An additional qualifier, "B", may be appended to indicate that while the analyte was detected in the sample, the presence of the analyte may be attributable to blank contamination and the analyte is therefore considered undetected with the sample detection or quantitation limit for the analyte being elevated.

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity. The data should be seriously considered for decision-making and are usable for many purposes.

An additional qualifier will be appended to the "J" qualifier that indicates the bias in the reported results:

L Low bias

H High bias

K Unknown bias

Q The reported concentration is less than the sample quantitation limit for the specific analyte in the sample.

The L and H qualifier will only be employed when a single qualification is required. When more than one quality control parameter affects the analytical result and a conflict results in assigning a bias, the result will be flagged JK.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

VOC DATA EVALUATION

1. Analytical Method:

Samples were prepared and analyzed for VOCs using the procedures specified in **EPA Method TO-15.**

2. Holding Time/Sample Receipt:

All VOC samples were analyzed within the required holding time of less than 30 days. No qualifications are placed on the data.

It was noted in the case narrative that sample BVF-SUM-011-20181210-1 (1812211-01A) arrived at the laboratory at 0.1 psi (Final sampling pressure was 5 psi) and sample BVF-SUM-014-20181210-1 (1812211-04A) at 1.8 psi (Final sampling pressure was 5 psi). Professional judgment was used in rejecting (R) all results in sample BVF-SUM-011-20181210-1 and estimating all results (UJ) in sample BVF-SUM-014-20181210-1: direction of bias unknown.

It was noted in the case narrative that sample BVF-SUM-014-20181212-3 (1812274-05A) was received at the laboratory with significant vacuum remaining in the canister. Since this sample is an equipment blank that contained no contaminants, no action was taken.

3. Tuning/Performance:

BFB tuning of the mass spectrometer(s) was conducted at the required frequency and results were within the required criteria. No qualifications are placed on the data.

4. Initial Calibration:

All percent relative standard deviations (%RSDs) were less than the control limit provided (≤30) or a linear regression was used and the correlation coefficient was greater than 0.995. No qualifications are placed on the data.

5. Continuing Calibration:

All percent differences (%Ds) were less than the control limit provided (≤30). No qualifications are placed on the data.

6. Blanks:

A. Laboratory Blanks

A method blank was prepared at the required frequency of every time samples were prepared/digested for each matrix or every 20 samples whichever is greater. No target analytes were detected in the method at concentrations that warrant blank action. No qualifications are placed on the data.

B. Field Blanks:

Sample BVF-SUM-014-20181212-3 (1812274-05A) is the field blank associated with all samples and included in SDG 1812274. No compounds were detected.

7. System Monitoring Compounds (SMC):

All recoveries of the system monitoring compounds (surrogates) were within the control limits provided. No qualifications are placed on the data.

8. Matrix Spike/Matrix Spike Duplicate (MS/MSD):

No sample from this analytical package underwent MS/MSD analysis for the air matrix. No qualifications are placed on the data.

9. Duplicates:

A. Laboratory Duplicate Analysis:

No sample from this analytical package underwent laboratory duplicate analysis for the air matrix. No qualifications are placed on the data.

B. Field Duplicate Analysis:

No field duplicate samples were submitted with this analytical package. No qualifications are placed on the data.

10. Internal Standards:

Areas of the three VOC internal standards were within the control limits of 60% to +140% and retention times were within 0.33 minutes from the associated 12 hour calibration standard. No qualifications are placed on the data.

11. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD):

The laboratory analyzed a LCS/LCSD and recoveries and relative percent difference (RPD) values were within the control limits provided. Methyl acetate was not spiked into the LCS or LCSD, however, it was included in the CCV and recovery criteria was met. No qualifications are placed on the data.

12. Target Compound Identification:

All VOC target compounds reported by the laboratory met identification criteria of relative retention times (RRT) within 0.06 RRT units of the 12 hour standard and that all ions present in the standard mass spectrum were present in the sample mass spectrum and the abundance of these ions agreed within $\pm$ 20% of the standard. No qualifications are placed on the data.

13. Target Compound Quantitation and Reporting Limits:

Concentrations of all reported compounds were correctly calculated.

However, the laboratory noted in the case narrative that the reported result for 4-Ethyltoluene in sample BVF-SUM-013-20181210-1 may be biased high due to co-elution with a non-target compound with similar characteristic ions. Both the primary and secondary ion for 4-Ethyltoluene exhibited potential interference. Therefore, professional judgment was used in estimating (JH) the positive result for 4-ethyltoluene in sample BVF-SUM-013-20181210-1 (1812211-03A).

14. Laboratory Contact:

No laboratory contact was required.

15. Overall Assessment

The analytical data is acceptable for use with the applied qualifications with the following exceptions: all results were rejected (R) in sample BVF-SUM-011-20181210-1 (1812211-01A).